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left to medicine in his catalogue of the Surgeon General's Library a monumental labor which none will ever better and to which he gave continuity of vigorous life.

S. WEIR MITCHELL

THE DUTY OF THE STATE IN THE PROSECUTION OF MEDICAL RESEARCH¹

It is an interesting manifestation of apparent humility and unwonted lack of self-conceit that man should have hesitated so long to emphasize the primary responsibility of the state for the physical well-being of its citizens. Health is a fundamental resource not only of the individual, but, in a very real sense, of the state itself. The happiness, the efficiency, and even the existence of every citizen is threatened by the presence of disease in the individual home. It would be interesting to discuss why an educated nation has so long permitted the existence and even encouraged the extension of sickness and disease among its citizens by failing to take means for the correction of the individual evil, and for the prevention of its dispersal among other unaffected members of the community. Discussion of this feature would demand more time than is reasonable on this occasion, and it is sufficient to have indicated the existence of influences which stand in the way of efficient work for the conservation and improvement of public health.

The state university has been organized and developed by the state in order to supply that trained knowledge which is essential for the comprehension and solution of modern problems. Unwilling that all knowledge should come to the public through private citizens, or that the dissemination of knowledge and the methods of its application should be dependent upon the liberality of the fortunate individual or in any way hampered by the con-

¹ Address at the dedication of the medical laboratories at the University of Nebraska.

ditions under which private munificence is granted and expended, the state itself, that is, the common men and women of the community working together, have contributed each one of their means and according to their ability that they may have in their midst a center of influence ready and able to gather the best knowledge from all sources, to assimilate it to their purposes, to apply it for their protection and advancement, and thus to make possible a broader and richer and freer and fuller life than they working singly could ever attain. Every man and every woman in the entire commonwealth who has sufficient honor and self-respect to pay taxes has contributed to the support of the state university as a whole, and of every one of its individual departments. The responsibility that the university and every one of its individual departments assumes is thus definite and grave. It involves the very best possible application of funds which represent many instances of self-denial and privation on the part of individual citizens that it may further the interests of every one of those citizens in the most efficient manner. This is the problem which stands before the medical department of the University of Nebraska in its new quarters so generously provided and admirably adapted for the work of medical education, primarily in its relation to the state of Nebraska itself, but since we are all members of one nation, and of one family of nations, in constant, intimate, and unavoidable contact with each other, really also in its relation to the nation and the entire world.

Men look at things from different points of view. Toiling up the steeps of knowledge, we reach different coigns of vantage, from which we may look out and get a somewhat imperfect and incomplete view of the achievements of the past, and the paths that lead on to the higher attainments of

the future. The view that each one gets is imperfect, and there are few of us who feel that we have risen high enough to command a really broad and comprehensive survey of the situation. For my part, it is with great diffidence that I express any opinion, especially in the presence of the deservedly famous scholar and investigator who follows me, and who has contributed in many ways so definitely and richly to the progress of the nation in medical matters. And yet there are some elements in the responsibility, as I see it, of this institution to the community which has founded and is supporting it, that are unmistakable in their appeal to every one. If they appear to you so commonplace that you wonder at their recital here, may I suggest that the restatement of fundamental relations is not only valuable but indispensable when, on such occasions as this, men and women come together to do honor to a great institution and set the seal of public approval on the facilities which it has created for work, as well as to give inspiration and direction to the increased influence and opportunity that grow out of the greater possibilities in the new environment. There is always some danger that a new movement loses sight of fundamental responsibilities, and in emphasis upon one opportunity forgets to do equal justice to the others that surround it and rightly expect their appropriate attention and emphasis. What are the primary duties of this school in its new home? Only those laid upon it at its organization, even though now in a richer environment they acquire a new and stronger emphasis.

The first duty that suggests itself in any discussion of the state university is that of education, and in the minds of many the duty is limited to its narrower significance of the word, *i. e.*, to training in set classes and courses those who present themselves with adequate preparation and fixed pur-

pose to achieve the special end they seek. But many universities have neglected to consider that it is neither possible nor desirable for the single institution to give instruction in this narrow sense to each and every citizen desiring the training. Many of our state universities have hampered their usefulness by striving to teach more students in more ways than the means at their command would justify. They have duplicated opportunities of the routine sort and have been overwhelmed by masses of elementary students whose training added little except political strength to the influence of the university or to the welfare of the state, and only mere commonplace finish to the training of the individual. Every time the university takes a student from another institution, either high school or academy, college or technical school, before he has legitimately utilized the opportunities which that institution offers for his purposes, it has contributed to the disintegration and destruction of the educational strength of the community. Every time a university admits a poorly trained or mentally incompetent student or retains in its class-rooms a time-serving, shirking idler, indifferent to his opportunities, it does a grave injustice to the energetic and ambitious workers in its halls, and may fairly be charged with misuse of public funds. In the mad rush after students, all of our institutions alike have added to their own weakness rather than to their own vigor, and have wasted the resources of the people insofar as they have taken part in the struggle after mere bigness.

If it be no proper ideal to gather in numbers at the expense of fitness, it is certainly a clear function of the state institution to set minimum standards for the entire commonwealth, to indicate what is reasonable training in a given field, and to prevent

the exploitation of the uninformed by private institutions that pretend to prepare, but do not really fit, students for the life work which they are aiming to pursue. Nowhere is the necessity for establishing standards and fixing the conditions of reasonable preparation for professional work more essential than in the medical school. The poorly trained engineer fails to achieve individual success but usually never reaches a stage of independent action in which his lack of training becomes a menace to the public. The poorly trained lawyer loses his client's case, and the public is warned by the evident lack of success on his part to avoid seeking his assistance in important matters. In so far as the interests of his client are interwoven with the interests of the community, he may do definite harm to the general welfare, but that is a blow to prosperity only, and because of the financial relation, the public is quicker to see and to act in the situation than where more subtle interests are threatened. The poorly trained doctor, however, not only fails to discharge his responsibilities to his patients, but is in a very real way a positive menace to the entire community. If he fails to recognize communicable disease and to take definite steps for its isolation, others must pay the penalty. The poorly trained man may be thoroughly honorable, and may strive to the utmost to discharge his own obligation, but if he has not the requisite knowledge, his most conscientious efforts are inadequate to protect the public. Consequently, every individual in the commonwealth is continually and vitally and personally concerned in the proper and thorough training of every man who practises the medical profession within its limits.

The state must get the proper standards of medical training from those who as its representatives are giving medical educa-

tion in the state university in the name of the commonwealth, and the state must hold these teachers, its representatives, responsible that they set the standards of medical education carefully, so as to protect all its citizens from the consequences of poorly trained or inadequately trained or wrongly trained practitioners of medicine. Once that the medical school of the state university has established this standard and has applied it without fear or favor to its own students, the authorities of the state in legislative and administrative circles must for the protection of the commonwealth adopt and apply those standards not only to the students who receive training at the hands of the state, but to all persons who desire to enjoy the privileges of medical practise within the limits of the state. No nation could lay claim to membership in the group of progressive civilized communities that coined its own money on one standard and permitted private citizens to circulate money based on standards of their own choosing; and yet there are apparently intelligent commonwealths in our union that have seen one standard set for the education of professional men in their own universities, and have permitted private institutions to adopt other standards of their own making, to grant degrees of all sorts without regard for their actual value, and to turn loose upon the public professional men whose certificates of proficiency are no better than wild-cat banknotes. Nor is this establishment of standards by the state calculated to arouse resentment or opposition on the part of those private institutions which are seeking without regard to personal gain to discharge their obligations to the public. The very appreciation of such obligations and the renunciation of personal gain which enters into the legal organization of such institutions, make

them welcome the careful study of methods and standards by the state universities, since their own conditions often do not permit them to engage extensively in the investigation and solution of complicated educational problems.

It would be unfortunate for the commonwealth, however, if the entire energies of any college in its state university were expended upon the establishment of standards for proper training, and upon the application of those standards to a limited number of students. The state must look to the college for direction in those technical and professional matters that are entering more and more every year into the organization and development of our complex civilization. Municipal and state officers meet problems that they can not possibly solve without the advice and assistance of expert workers in various lines. There is a well-marked tendency to seek such consulting experts within the limits of the state university faculty; and where formerly men of no connection with the state or responsibility for the problem other than that indicated in the acceptance of a fee for a professional opinion, were summoned from a distance to solve the educational or engineering or hygienic problems of the community, to-day, states are looking for their help in determining the form of legislation, the principles of education or organization, and the methods of applied science in every field, to the universities that have been founded and developed at public expense. Such a tendency is not only natural but inevitable. There should be nowhere better trained and better informed men in any field than those who are called to serve the highest educational institution of the state in a particular line of work. There are nowhere men freer from bias, men more untrammelled by private influ-

ence or better calculated to resist insidious and insistent pressure, or men more devoid of other interests and more thoroughly devoted to the public welfare than those who have taken upon themselves the duties of teaching in the public university.

It is hardly necessary to take time to apply this principle in detail to the work of the medical college. Trained experts are nowhere more seriously needed and unfortunately also more difficult to secure than in the field of public health with its manifold relations to municipal sanitation and individual and community hygiene. Here it is that the research man justly maintains his preeminent position. If the water supply of a great city is contaminated, and the health of the entire community is threatened, it is the bacteriologist to whom municipal authorities rightly turn for information as to the precise source of the difficulty and advice as to the best methods of correcting it. If the exploitation of the public by unscrupulous purveyors of adulterated foods is to be prevented, a campaign must be based on the definite evidence which is furnished in the laboratory of the chemist. The public can not be protected unless it can assemble on its side a force of consulting experts and professional investigators whose training is broad enough and whose standing is high enough to enable them to compete successfully with the paid experts who can be summoned by great corporations and important interests and who by their partial exposition of the truth becloud the issue and protect the wrongdoer at the expense of the whole people. The state must have and must use the expert staff of its medical school in the service of the public.

There is a third function of the state professional school which I consider to be equally important, although less generally

recognized by the average man and woman because its meaning is more obscure and its relation to the ordinary affairs of life more difficult to demonstrate clearly. I mean the duty of the school as a center for continued research. The relation between highly trained men of the research type and the proper education of professional students is too clear to need extended demonstration. Standards can be set and applied only by those who have the broadest and strongest command of the professional situation. Then, also, the advice on technical problems which is to be furnished the state in time of need can come only from those who have themselves enjoyed the most thorough training and have demonstrated their ability as original workers in their individual fields. It is, however, equally essential that the professional school should be a center of continued experimental work. The discoveries of science that follow one another with such rapidity in these days must be tested, extended, applied, in order to have the maximum value for the race. The ability to test such discoveries depends very definitely upon acquiring, retaining and exercising the research habit. Unless a man keeps on investigating, unless he continues to experiment, he is not in a position to give the right value to a new discovery, or to place it in its correct relation to the other facts in his field, and to interpret it in a thorough and practical manner for the benefit of the community. The man who has devoted himself exclusively to teaching, or exclusively to the practise of his profession, whose entire mental energies are expended in carrying out his program of education, or in discharging his responsibilities to those who seek his advice and counsel, can not fully discharge his duties towards the state as the member of a professional fac-

ulty. As the delta of the river is gradually built up by the continued accumulation of myriads of minute particles, so the knowledge of one generation reaches a higher level by minute additions which come to it from a multitude of individual sources. If knowledge is to advance, and science to become more useful to the human race, if the life of to-morrow is to be richer and more varied than that of to-day, if the man of the future is to be freer from disease and more perfect in physical development, both individually and collectively, than the man of to-day, then every worker in the field of science must contribute at least his little part to the accumulation of new facts and new relations upon which in ultimate analysis this advance depends. The teacher who is adding to his knowledge only by the reading of that which has been acquired by others, is failing to cultivate a power that is of fundamental value to the institution and to the commonwealth. The expert who is merely repeating the work that he has done over and over again, who applies to every new situation only the methods and results of older experimenters, is not doing his part towards the institution he represents and the community that claims his service. It is not only true that the men who have contributed the great advances in knowledge have been those who applied themselves insistently to independent investigation, but also that the inspiring teachers and the efficient directors of public activity have been conspicuous for their devotion to research and their contributions to knowledge. Medical science is of recent growth. The application of discoveries in allied sciences to the cure and prevention of disease has yielded splendid results, but the work has only just begun and rich opportunities await the coming of new investigators. The welfare of the race demands

that the state do its part in cultivating this fertile field of research. Whatever private institutions may do, the state has no choice. The men who are its teachers must also be investigators and must contribute their share to the extension of knowledge.

I trust that my discussion thus far has not failed to call clearly before your minds the three features which I consider to be all-important in every university professional school. I hope that my brief statements have suggested to your minds the varied functions of the university teacher so clearly that you are ready to grant him the duties beyond those of the mere pedagogue. Routine teaching may be done equally well in any institution. Expert analysis and investigation, however, are limited to our great universities, because of their demands upon space and time and money. The state university which fails to take account of these duties, which loads its faculty members with teaching to such an extent that they have no time or energy left for other items, is not only doing itself a great injustice, but is false to its responsibilities to the state. Research opportunities should be provided for its staff, and research work should be demanded of each member. Provision for laboratory equipment and space are sometimes included in the plan of college organization when the specified duties of the instructor leave him no time or energy for the prosecution of research. Participation in meetings and conferences is important and may properly be demanded of the scientist in the service of the state, but unless due allowance is made for such activities in arranging the individual work of the teacher, unless he is given also some leisure for research, he will not contribute to the advancement of knowledge or to the protection of the state.

This, then, is the meaning of the new

campus and the new laboratory. This, but the first building of a great group, is to be dedicated to the service of the state, with the fullest sense of the responsibilities which that service implies. But other buildings must follow to provide adequately for other lines of teaching, for it is no little work that is inaugurated this year on this new campus and in this first laboratory building. This institution is to furnish for the state of Nebraska to every one of its citizens and through them to the whole world by its teaching and investigation, richer possibilities for human existence. It is to establish here in the center of the great prairie region standards of medical education that will direct the advance in medical training, not only within its borders, but throughout all the surrounding states. It has gathered together here a group of trained experts who may reasonably stand unabashed in the company of any similar group in the great central west. It is to give them opportunity for directing public activity, for protecting public interests, for averting public disaster. They, as scientific men, know their responsibilities and appreciate their opportunities. They are ready to do their work, they are prepared to lead the state in achieving these greater results. They have already contributed to the advance of knowledge, they are eager to continue that work. They are demanding more, not for themselves, but that through it they may give more to the world. It is fortunate that the foundations of the enterprise have been laid in a city that has dreamed of other great possibilities and is realizing them. Equally propitious is the control exercised over its destiny by a great state, devoted to education and justly proud of its own university. Under such conditions, the vision must soon become a reality and other buildings rise be-

side this new structure to extend and multiply its work and to realize the hopes of other workers yet unprovided with adequate facilities, that here may be developed a great institution for the relief of suffering and the service of humanity.

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*THE SIGNIFICANCE OF THE NATIONAL
BIED LAW*

FOR 125 years, constitutional lawyers and laymen were agreed on at least one thing—that the national government possesses only those powers specifically granted in the constitution, and those reasonably implied from such specific grants. The states possess the residue. There had been, it is true, some argument as to the interpretation to be given to Art. I., Sec. 8, Par. 1 of the constitution as well as to the 9th and 10th amendments. But this was wholly academic, and the consensus of opinion soon crystallized to the above stated proposition.

Yet during our constitutional life of 125 years we have seen remarkable changes going on in this country. The states were isolated and self-sufficient. The stage offered no inducement to travel from state to state, nor the pack horse to trade. To-day, what a revolution in our economic and social life! Railroads, steamships, the telegraph and telephone, along with a thousand other inventions, have made us live a different life. Distance has been shortened; the United States made smaller. One state can no longer satisfy our needs, for all states are interdependent.

Yet more remarkable than all, we live under substantially the same constitution. But only because it is too difficult to amend, for we are to-day confronted with many problems which some think can only be settled satisfactorily by a constitutional amendment. Yet that is next to impossible. It will pay us to glance at a few of the problems that have arisen because of revolutionary changes in our ways of living. For almost half a century the conflict of divorce laws in the states—some

lenient, others strict—has been the subject of continual agitation. The origin of the American Bar Association and the origin of the Commission on Uniform State Laws is but an indication of the stir that the diversity in divorce laws must have produced. Yet in spite of continued attention to this subject from 1878, when the American Bar Association was organized, no substantial results have been accomplished; this, though the Commissioners on Uniform State Laws have fought for it for twenty-five years, though a national conference was held at Washington, and though no end of other organizations are urging uniformity of divorce laws. After all this effort three states have uniform divorce acts, and these are not absolutely uniform. The very natural result is that public opinion is turning to the federal government and asking for a national divorce law. But that would necessitate a constitutional amendment.

While not now in the public eye, it was only a short time ago that we heard of the evils flowing from the corporation laws of some states. And no wonder there was criticism when some of the states debauched themselves to an advertising campaign in order to induce incorporation under their laws, the "most liberal," that is the most lax, in the United States. Here too uniformity has been attempted by state action, and as yet not even an act has been agreed upon. Very naturally again public opinion turns to the national branch for relief, demanding either a federal incorporation act, a federal license, or any form of relief that federal action can give. Yet the constitutionality of such a law has been questioned.

In the various states, the progressive element is urging reform on such questions as hours of labor, woman and child labor, minimum wage, protection from machinery, protection from trade diseases, in short all the problems of modern factory life. What kind of opposition is met? A kind that is very difficult to reply to—successfully. The manufacturer says: "Yes, hours of labor should be reduced; children should not be employed; we ought to take greater precautions to protect